**3GPP TSG-CT WG1 Meeting #141eC1-232560**

**Online 17– 21 April 2023**

**Source: vivo**

**Title: PIN discovery procedure**

**Spec: 3GPP TS 24.583 v0.0.0**

**Agenda item: 18.2.26**

**Document for: Agreement**

**1. Reason for Change**

Before the PINE triggers the PINE join into the PIN, the PINE should discover the available PIN.

For a certain PIN element, the PIN should be discovered and the PIN element can decide whether to join in the PIN. There are two situations that the PIN elements can discover the PIN as following:

- If the PIN elements can have an application layer communication with the PEMC which manages a PIN, the PIN elements can receive the PIN ID, PIN description and the PIN service that a PIN can provide, and decides whether to join the PIN;

- The PEGC can be set as open access and the PIN element can communicate with PIN server to receive the PIN ID, PIN description and the PIN service that a PIN can provide from PIN server via the PEGC.

The PIN discovery procedure is specified in clause 8.5.7 of TS 23.542 v0.2.0

**2. Proposal**

It is proposed to agree the following changes to 3GPP TS 24.583 v0.0.0.

\* \* \* First Change \* \* \* \*

#### 5.4.4.1 General

This clause describes the procedures for PIN discovery procedure.

The purpose of PIN discovery procedure is to discover a specific PIN for a PEAE-C. The PEAE-C can discover and decide whether to join in a PIN. The PEAE-C can discover the PIN by:

a) if the PINE have an application layer connection with the PEMC of a PIN (e.g. via WiFi, Bluetooth, etc.), the PIN elements can receive the necessary information of a PIN from the application layer connection; or

b) if the PEGC can be set as open access (e.g. with no user name or password), the PIN element can communicate with PAE-S to receive the necessary information of a PIN from PAE-S via the PGAE-C.

The following procedures are defined for PIN discovery procedure:

a) PIN discovery with assistance of PMAE-C as specified in clause 5.4.4.2; and

b) PIN discovery with assistance of PAE-S via PGAE-C as specified in clause 5.4.4.3.

Editor's note: The structure of this clause will be reshaped to different clauses for different entities.

#### 5.4.4.2 PIN discovery with assistance of PMAE-C

##### 5.4.4.2.1 PIN discovery with assistance of PMAE-C initiation by PEAE-C

When the PEAE-C needs to discover a PIN, the PEAE-C shall generate an HTTP POST request according to procedures as specified in IETF RFC 7231 [X]. In the HTTP POST request, the PEAE-C:

a) shall set the Request-URI to the URI of the PEMC;

b) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

c) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-request> element in the <pinapp-info> root element:

1) shall include a <ue-id> element set to the PIN client ID of the PEAE-C;

2) shall include a <security-credentials> element set to the security credentials resulting from a successful authorization for the PIN service;

3) may include a <pin-client-profile> element set to the PIN client profile available in the PEAE-C;

4) may include a <ue-location> element set to the location of the PEAE-C; and

5) may include a <requested-pin-service> element set to the service information of the request PIN service(s).

The PEAE-C shall send the generated HTTP POST request towards the PMAE-C according to IETF RFC 7231 [X].

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-request> element in the <pinapp-info> root element,

the PMAE-C shall check whether the PEAE-C is allowed to discover the PIN that the PMAE-C manages.

##### 5.4.4.2.2 PIN discovery with assistance of PMAE-C accepted by PMAE-C

If the PEAE-C is allowed to discover the PIN that the PMAE-C manages, PMAE-C shall:

a) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PMAE-C:

1) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

2) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-accept> element in the <pinapp-info> root element:

i) shall include a <pin-id> element set to the PIN ID of the PIN;

ii) may include a <pin-description> element set to the description of the PIN (e.g., the vendor's name, location, the type of PIN, etc.);

iii) may include a <pin-service-list> element set to the list of services that the PIN can provide (e.g. PIN service provider identifier, PIN service type, PIN service feature, etc.); and

iv) may include a <pemc-info> element set to the identifier and IP address of PMAE-C; and

b) send the HTTP 200 (OK) response towards the PEAE-C.

##### 5.4.4.2.3 PIN discovery with assistance of PMAE-C completion by PEAE-C

Upon reception of an HTTP 200 (OK) response message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-accept> element in the <pinapp-info> root element,

the PEAE-C shall consider the PIN discovery procedure with assistance of PMAE-C is accepted by the PMAE-C and decides whether to join the PIN according to the <pin-discovery-accept> element.

##### 5.4.4.2.4 PIN discovery with assistance of PMAE-C not accepted by PMAE-C

If the PEAE-C is not allowed to discover the PIN that the PMAE-C manages, PMAE-C shall:

a) generate an HTTP 406 (Not Acceptable) response according to IETF RFC 7231 [X]. In the HTTP 406 (Not Acceptable) response message, the PMAE-C:

1) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

2) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-reject> element in the <pinapp-info> root element:

i) shall include a <cause> element set to an appropriate cause for PIN discovery failure; and

b) send the HTTP 406 (Not Acceptable) response towards the PEAE-C.

Upon reception of an HTTP 406 (Not Acceptable) response message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-reject> element in the <pinapp-info> root element,

#### the PEAE-C shall consider the PIN discovery procedure with assistance of PMAE-C is rejected by the PMAE-C.5.4.4.3 PIN discovery with assistance of PAE-S via PGAE-C

##### 5.4.4.3.1 PIN discovery with assistance of PAE-S via PGAE-C initiation by PEAE-C

When the PEAE-C needs to discover a PIN, the PEAE-C shall generate an HTTP POST request according to procedures as specified in IETF RFC 7231 [X]. In the HTTP POST request, the PEAE-C:

a) shall set the Request-URI to the URI of the PIN server;

b) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

c) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-request> element in the <pinapp-info> root element:

1) shall include a <ue-id> element set to the PIN client ID of the PEAE-C;

2) shall include a <security-credentials> element set to the security credentials resulting from a successful authorization for the PIN service;

3) may include a <filter-info> element set to the filter information (e.g. the interesting area, the interesting type of PIN, etc);

4) may include a <ue-location> element set to the location of the PINE; and

5) may include a <requested-pin-service> element set to the service information of the request PIN service(s).

The PEAE-C shall send the generated HTTP POST request towards the PAE-S according to IETF RFC 7231 [X].

NOTE: The HTTP POST request message is routed to PAE-S with the assistance of the PGAE-C.

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-request> element in the <pinapp-info> root element,

the PAE-S shall check whether the PEAE-C is allowed to discover the PIN that the PEAE-C is interested in.

##### 5.4.4.3.2 PIN discovery with assistance of PAE-S via PGAE-C accepted by PAE-S

If the PEAE-C is allowed to discover the PIN that the PEAE-C is interested in, PAE-S shall:

a) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PAE-S:

1) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

2) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-accept> element in the <pinapp-info> root element:

i) shall include a <pin-id> element set to the PIN ID of the PIN;

ii) may include a <pin-description> element set to the description of the PIN (e.g., the vendor's name, location, the type of PIN, etc.);

iii) may include a <pin-service-list> element set to the list of services that the PIN can provide (e.g. PIN service provider identifier, PIN service type, PIN service feature, etc.); and

iv) may include a <pemc-info> element set to the identifier and IP address of PEMC; and

b) send the HTTP 200 (OK) response towards the PEAE-C.

NOTE: The HTTP 200 (OK) response message is routed to PEAE-C with the assistance of the PGAE-C.

##### 5.4.4.3.3 PIN discovery with assistance of PAE-S via PGAE-C completion by PEAE-C

Upon reception of an HTTP 200 (OK) response message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-accept> element in the <pinapp-info> root element,

the PEAE-C shall consider the PIN discovery procedure with assistance of PAE-S via PGAE-C is accepted by the PAE-S and decides whether to join the PIN according to the <pin-discovery-accept> element.

##### 5.4.4.3.4 PIN discovery with assistance of PAE-S via PGAE-C not accepted by PAE-S

If the PEAE-C is not allowed to discover the PIN that the PEAE-C is interested in, PAE-S shall:

a) generate an HTTP 406 (Not Acceptable) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PAE-S:

1) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

2) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-reject> element in the <pinapp-info> root element:

i) shall include a <cause> element set to an appropriate cause for PIN discovery failure; and

b) send the HTTP 406 (Not Acceptable) response towards the PEAE-C.

NOTE: The HTTP 406 (Not Acceptable) response message is routed to PEAE-C with the assistance of the PGAE-C.

Upon reception of an HTTP 406 (Not Acceptable) response message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-discovery-reject> element in the <pinapp-info> root element,

the PEAE-C shall consider the PIN discovery procedure with assistance of PAE-S via PGAE-C is rejected by the PAE-S.

\* \* \* End of Changes \* \* \* \*